

REMARKS

The Examiner is respectfully requested to review this application which has been amended after a careful consideration of the Examiner's comments in the above-identified Office Action and the references cited therein. Specifically, claim 36 has been amended to more distinctly point out and clarify applicants' invention. Claims 24-26, 36 and 39, as amended, are now pending. In the above-identified Office Action, the Examiner withdrew the rejection of claims 36 and 39 on new matter and has now rejected claims 36 and 39 as being indefinite. Further, the Examiner has maintained the rejection of claims 24-26 as unpatentable over the Brown et al and Tobin references and the rejection of claims 36 and 39 as unpatentable over the Brown et al and Schmunk references. Independent claims 24 and 36, as amended, and claims 25, 26 and 39, depending therefrom are neither disclosed nor suggested by the references and are now considered to be in allowable form.

For example, Claim 24 is directed to a fuse tube having a multiple layered laminate construction including an inner arc-quenching surface layer comprised of a wound filamentous fiber material supported in a matrix comprising a thermosetting resin and melamine, and also including at least one outer layer of filament wound glass fiber reinforced thermosetting resin, the outer layer being bonded to the inner arc-quenching surface layer whereby no dielectric or mechanical interface is present between the inner and outer layers, the inner arc-quenching surface layer comprising at least 10% by weight melamine, at least 10% by weight of the filamentous fiber material and at least 40% by weight of the thermosetting resin. This fuse tube is neither disclosed nor suggested by the prior art. The Examiner states that the Tobin reference describes a wound body 12 at col. 4, line 7. However, this is a mischaracterization. The Tobin reference states:

“**the body 12 of the fuse tube 10 includes an inner portion 30 and an outer portion 40 . . . formed by a molding technique . . . The boundary between the two portions 30 and 40 of the body 12 is defined by a cylinder 50 of a reinforcing material, such as a woven fiberglass cloth or mat or spirally wound fiberglass strands**”. (emphasis added)

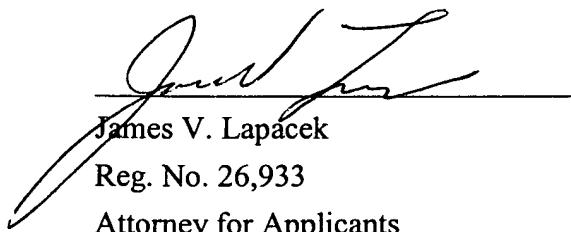
Thus, it is clear that the fuse tube portions are molded and not wound, the only reference to wound being that of the boundary layer that joins the inner and outer portions. Accordingly, it is applicants' position as stated in prior responses that this fuse tube construction including melamine in the inner wound layer is neither disclosed nor suggested by the prior art and that claim 24 is allowable. Similarly, claims 25 and 26, depending from claim 24 are also allowable.

Applicants' invention as recited in claim 36, as amended, recites a method of fabricating an arc-quenching tube via the winding of a first fiber in one or more winding passes, the method comprising winding the arc-quenching tube such that the first fiber lays flat and does not overlap in each of the one or more winding passes whereby a predetermined suitable uniformity is achieved in the thickness of the tube, the method further comprising forming a predetermined taper within the arc-quenching tube wherein the predetermined taper defines a minimum predetermined wall thickness of the tube, the predetermined suitable uniformity being such that variations in the thickness of the tube are significantly less than the minimum predetermined wall thickness so as not to significantly impact or interfere with the desired wall thickness defined by the predetermined taper. The prior art neither discloses nor suggests the combination of a taper and a predetermined suitable uniformity of winding being so achieved for producing such a fuse tube. The mere presence of a non-uniformity in prior art tubes does not suggest the claimed method to achieve a predetermined suitable uniformity in the arc-quenching tube having a taper that defines the wall thickness. Regarding the Examiner's rejection as being indefinite, uniformity of the winding is explained in the specification at page 7, lines 3-27. The fiber being made to lay flat assists in providing the uniformity. FIG. 3 of the application illustrates what happens with a tapered bore when the uniformity is not suitable. Namely, when the taper is produced within the tube, taper extends beyond the wall of the arc-quenching tube and into the outer tube. FIG. 4 illustrates how a suitable uniformity results in the taper being contained within the wall thickness of the arc-quenching tube 12. The predetermined wall thickness of the tube is defined by the taper in the absence of variations in the uniformity. The taper in combination with the variations in uniformity determine the required wall thickness to achieve a desired minimum wall thickness at the greatest point of the taper. The relative dimensions of an illustrative example are set forth at page 7, lines 24-27. As set forth at page 7, lines 17-19, the minimum wall thickness depends on the amount of the wall thickness that is expected to be eroded or ablated over a useful life. This method provides, as shown in FIGS. 4 and 5, a minimum thickness of the inner layer of the fuse tube while ensuring that the normal erosion of the arc-extinguishing bore during repetitive use does not extend into the outer layer that does not have the same arc-extinguishing properties. Such is important when providing the high strength and wide current interrupting range in a fuse tube that can interrupt 12000 amperes. Thus, claim 36, as amended, and claim 39 depending therefrom are allowable, claim 39 additionally reciting the winding of a second fiber over the first fiber.

Accordingly, claims 24-26, 36 and 39, as amended, are considered to patentably distinguish over the cited reference, and these claims and this application are considered to be in a condition for allowance. A favorable action to that end and allowance of this application by the Examiner are respectfully requested. If the Examiner feels that clarification of any issue or

comment herein would be helpful to facilitate prosecution of this application, the Examiner is respectfully requested to contact the undersigned attorney at the number listed below for a telephonic interview or to arrange a personal interview.

Respectfully submitted,



James V. Lapacek

Reg. No. 26,933

Attorney for Applicants

S&C Electric Company  
6601 N. Ridge Blvd.  
Chicago, IL 60626  
Telephone: (773) 338-1000 x2497  
Facsimile: (773) 338-1682

August 23, 2002

**ATTACHMENT TO AMENDMENT E**

VERSION WITH MARKINGS TO SHOW CHANGES MADE



36. (fourth amended) A method of fabricating an arc-quenching tube via the winding of a first fiber in one or more winding passes, the method comprising winding the arc-quenching tube such that the first fiber lays flat and does not overlap in each of the one or more winding passes whereby a predetermined suitable uniformity is achieved in the thickness of the tube, the method further comprising forming a predetermined taper within the arc-quenching tube wherein the predetermined taper defines a desired minimum [predetermined] wall thickness of the tube, the predetermined suitable uniformity being such that variations in the thickness of the tube are significantly less than the desired minimum [predetermined] wall thickness[, the non-uniformity being sufficiently small] so as not to [affect the minimum predetermined wall thickness such that the non-uniformity does not] significantly impact or interfere with the desired minimum wall thickness defined by the predetermined taper.

**RECEIVED**

SEP 09 2002

TC 1700

COPY OF PAPERS  
ORIGINALLY FILED